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ABSTRACT

A historical overview regarding the deficits in education provided to accounting students precedes a discussion of research regarding the teaching of accounting. The need is shown for research on the teaching and learning of accounting as a strategy for curriculum improvement. Both learning and teaching theories are reviewed. Instructional strategies (lecture, discussion, demonstration, personalized instruction, computer-assisted instruction, role playing, case studies, instructional media) used by teachers at the higher education level are also described and discussed. It is concluded that if accounting educators believe that one goal of teaching is to enhance learning, then the improvement of teaching is most apt to occur when connections can be made in the research literature between teaching and learning. Accounting teachers must learn to apply theories of both learning and teaching in their approaches to teaching in appropriate learning situations. Accounting educators should take a major part in research related to teaching and learning because change in practice reflects the strength of the curriculum that depends upon their ability to modify existing teaching procedures. A seven-page bibliography is provided. (CB)

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RESEARCH ON TEACHING AND LEARNING ACCOUNTING AS A STRATEGY FOR CURRICULUM IMPROVEMENT

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RESEARCH ON TEACHING AND LEARNING ACCOUNTING AS A STRATEGY FOR CURRICULUM IMPROVEMENT

I. Introduction

Evidence indicates that accounting students are insufficiently prepared in their accounting courses (McGrew, 1969; Mautz, 1974). There is some indication that the inadequate preparation can be attributed , in part, to the failure of accounting faculty to teach their subject sufficiently, even though faculty may know their subject matter. Furthermore, accounting faculty have apparently conducted little research on how to teach accounting. There might, therefore, be a relationship between the lack of awareness of how to teach accounting and the failure of accounting students to learn the subject (Beaver, 1984). The purpose of this paper is twofold: first, to discuss the reasons for the dearth of research in accounting education, and secondly, to discuss research findings with reference to the importance of teacher involvement in research related to teaching and learning as a strategy for curriculum improvement.

II. An Historical Overview

Research indicates that many accounting educators have not been sufficiently involved in pedagogical research. As a result, they have been criticized for their neglect of valid innovative methods in teaching accounting. Leftwich (1974, pp. 370-375) attributes the criticisms to the fact that accounting educators have changed their approach to teaching very little over the past few decades. He contends that little evidence is available to indicate that classroom teaching techniques and student assignments are any different from those used 20 years ago.

Hofsted and Dyckman (1974) analyzed the situation as follows:

> It is both lamentable and typical that accounting educators have allocated relatively little research effort to understanding and improving their own activities in the classroom. There has been substantial innovation, but it has not been subjected to rigorous, organized study. The reason why such a dearth of research is lamentable should be obvious: for most accounting professsors: 90 percent of their time is spent in classrooms and 10 percent in research, but that time spent on research is allocated 10 percent to pedagogical research and 90 percent to substantive research (pp. 539-546).

In addition, most research conducted by accounting educators has been low quality and, consequently, of little importance (Edwards, 1974, pp. 584-589). As a result, accounting educators and practitioners have complained that researchers are not addressing the actual problems relative to teaching or practicing accounting.

Sterling (1975) noted that:

> The problem with research in accounting is that it appears to be an isolated activity. The results of research have very little impact on teaching or practice. Accounting educators concentrate, in the main, on teaching the present set of accepted practices. That is, they teach the existing Generally Accepted Accounting Principles to the exclusion of proposed modifications in GAAP arising from research discoveries....As a consequence, we witness a communication gap between research and teachers. There is precious little professional interaction between researchers and practitioners (pp. 58-59).

III. Current Barriers to Research on Teaching and Learning Accounting

Controversy has surrounded the prominence that should be assigned to teacher involvement in research related to teaching and learning. The dispute seems to stem from the fact that research has focused on teaching in isolation of what is to be taught. In sum, research in accounting has not been directed at practice, nor has it been thorough, nor adequately disseminated. This has caused a gap between academia and practice. This gap exists between what accountants do and what accounting educators teach (AAA Special Report, p. 172).

Mautz (1974, p. 30) asserted that this absence of research has been caused by a changing sense of values which occurred immediately following World War II. He noted that there was a substantial shift in emphasis (implemented by administrators) from research on teaching to non-classroom-oriented research. Research changed because administrators realized that there are money and prestige in research not related to teaching, and universities and colleges characteristically desire both. Consequently, many accounting faculty members are well rewarded by their disciplines and by their institutions with professional recognition and faculty advancement for research not related to teaching.

> Unfortunately, though, by compelling teachers to devote themselves to research, we are often encouraging poor research and losing fine teaching. Of course, we must be careful in the consideration of this issue, and there are those who tend to lose sight of the importance of qualitative considerations in research. Good teaching should be encouraged over mediocre research, but not necessarily above fine research. The influential Carnegie Commission

> Report (1973) recommended that "there be equal reward for teaching as for research, except for research at the highest levels of competence" (p.28).
>
> Although frequently considered as such, the university professor is not a superhuman creature. Like everyone else, the professor needs extrinsic, as well as intrinsic, rewards. When research and publication are rewarded to the exclusions of outstanding instruction, it is hard to imagine a faculty member spending much time improving his teaching at the expense of his research (Spitzer, 1976, pp. 97-111).

Achievement should bring reward. But rarely does the achievement of the outstanding teacher merit similar recognition. These combined factors, however, seem to have caused a parallel shift in the attitudes of accounting faculty members. Thus, it appears as if accounting educators are now doing research in the substantive areas of accounting.

This apparent bias toward substantive research suggests that accounting professors view research on teaching and learning as a low priority and not professionally rewarding. This is not to deprecate research and scholarship, consultation service, student placement and other activities in which accounting faculty engage. These activities may overshadow the task of assisting students in their learning.

IV. The Need For Research on Teaching and Learning Accounting As a Strategy for Curriculum Improvement

Research on teaching and learning in accounting education is needed as the basis for improving instruction in order to help students learn subject matter more efficiently. The literature contains discussion of the importance of teacher involvement in research related to teaching

and learning. Research studies support the view that teachers' involvement in research on teaching and learning will improve teaching (Jauch 1976).

Yet, positive and negative arguments about the relationship between teaching effectiveness and research involvement appear in the literature. Harry and Goldner (1972, pp. 47-60) found a negative relationship between teaching and research. Additionally, a modest inverse relationship was found to exist between time spent in teaching and research activities. The implication is that the worse the teaching becomes, the more research teachers do.

In a similar study of the relationship between research and teaching, Jauch (1976, pp. 11-13) gathered information from 86 professors in 23 departments in natural, mathematical, medical, and biological sciences at the University of Missouri-Columbia. The opinions of professors were examined in terms of their various activities and measures of research output. Department chairs were also asked what they thought about such influence.

The findings indicate a positive relationship between teaching and research. Professors and department chairs agreed that research contributes positively to teaching effectiveness. This does not mean that teaching contributes positively to research. There is a negative relationship in the sense that time spent in teaching detracts from research output and time utilized in research takes away time from teaching.

In another study of the relationship between research and teaching, Voeks (1963, pp. 212-218) sought information about publications and teaching effectiveness. Her findings indicate that publishing and

effective teaching do not go hand in hand, but do not conflict. According to Voeks, publishing and teaching are not related to each other in any apparent way, even at the extremes, because research and publishing signify nothing with respect to clarity of presentation and awakening of student interest in the subject matter. Effective teaching and extensive publishing are independent of each other.

Although there might not be a relationship between research/ publishing and the quality of teaching by college professors, it is possible that a correlation might exist between a given professor's research into students' learning of accounting and that professor's teaching of accounting. It is with this possibility in mind that the following theories of teaching and learning should be examined.

A. Learning

Research in accounting education is needed because learning is a very complex process and is the central concern of teaching. The literature contains various definitions and views of what learning is and why and how it occurs. The standard dictionary definition of learning is the acquisition of knowledge and skill (Webster, 1964).

Yet researchers and educators have their own views about learning. For example, Dececco (1968, p. 8), maintains that the term learning is a general concept which applies to all organisms, to all learning tasks, and to all situations both in and out of school in which learning may occur. Hilgard (1966) maintains that learning is the process by which an activity originates or is changed through reactions to an encountered situation, provided that the characteristics of the change in activity

cannot be explained on the basis of native response tendencies. Gagne (1970, p. 3) stated that learning is a change in human disposition or capability, which can be retained and which is not simply ascribable to the process of growth.

The above definitions of learning suggest that learning is indeed a complex process. Theories of learning and theories of teaching are just two of the aspects associated with teaching that can be used to facilitate student learning. They are related by common terms and are linked to the processes of learning and teaching. Yet they are interdependent rather than mutually exclusive concepts, and both are needed for a complete science of pedagogy; neither one is an adequate substitute for the other (Ausubel, Novak, and Hanesian, 1978, p.16). It has been said that the two terms are so closely interwoven that neither is a sensible concept apart from the other.

Consequently, if accounting professors are to facilitate student learning, they must learn to apply both theories of learning and theories of teaching in their approaches to teaching in given learning situations. In essence, accounting educators should take a major part in research related to learning and teaching since change in practice depends upon their ability and willingness to modify existing teaching procedures.

Stiles (1974) stated that:

> How we teach is dependent, to some extent at least, on the theories we accept. Whatever the approach, the strategies employed, and the relationships generated, the choice is related to one or more theoretical constructs that may or may not be consciously identified. Nevertheless, many who teach are unaware of the roles that various theories play in their work.

> It is possible to teach by intuition and imitation-and to be reasonably successful-without having analyzed the beliefs and conception underlying the processes.
>
> In traditionally oriented educational institutions, teaching patterns tend to be passed from one generation to another without the benefits of reflective analysis or objective verification. Ironically, too, much of the research on teaching and the treatises on "how to teach" have given little attention to basic theories concerning the nature and effectiveness of teaching. As long as teaching is viewed as a monolithic process involving stereotyped goals, procedures, and relationships, it may appear to be removed from and impervious to theoretical influences. It is only when there is concern with the improvement of teaching, in substantial ways, that questions are confronted about the theories that undergird particular approaches and tactics in the teaching-learning process (p.1).

1. Theories of Learning

Theories of learning deal with the way in which individuals learn. They are concerned, essentially, with the acquisition of knowledge and skills and describe and explain how learning occurs.

Moreover, many of the research findings associated with learning theories are confounded by the procedures of instruction. Learning theories can inform teachers about the variables that contribute to learning so they can help students improve in desired ways. Knowledge of theories of learning can improve a teacher's decisions in selecting appropriate teaching methodologies and help a teacher better understand the assumption behind various educational procedures and practices (Gagne, 1970).

There is little fundamental theory to indicate how accounting should be taught (Johnson, 1965). But, as we know, it is largely from theories of learning that we can develop defensible notions of how crucial factors in the learning-teaching situation can most effectively be manipulated (Ausubel, Novak, and Hanesian, 1978, p.16).

Furthermore, if accounting educators are genuinely interested in facilitating student learning, they must be cognizant of the fact that theories of learning cannot tell them how to teach in a prescriptive sense, but only offer the most feasible point of departure for discovering general principles of teaching that can be formulated in terms of both intervening psychological process and cause-effect relationships (Ausubel,Novak, and Hanesian, 1978).

Learning theories, most people will agree, fall into two major categories: stimulus-response (or behavioral) theories and cognitive theories. Stimulus-response theories are concerned with situations which influence an individual to respond by means of stimuli which control that response. This "stimulus control of a response" is called the S-R bond. These theories have been formulated by Ivan Pavlov, John Watson, Edward L. Thorndike, Clark Hull, Edwin Guthrie, and B. F. Skinner. Cognitive theories view learning as a process of discovery and understanding relationships, and/or organizing and finding significance in the sensory experiences aroused by the external situation (Kingsley, 1957). Proponents include Max Wertheimer, Wolfgang Kohler, Kurt Lewin, John Dewey, Jean Piaget, Jerome Bruner, and Robert Gagne. In this context, most of the research conducted in accounting has been done in the cognitive theory domain. Researchers in accounting have tended to

concentrate on findings by Bloom, and Gagne. Most of the research conducted, however, has been done in accordance with Bloom's taxonomy of educational objectives, accepted by many educators as having important applications for classroom instruction.

Deakin, Groanof, and Smith (1974, pp. 581-589) seem to think that Bloom's taxonomy is relevant to the development of curriculum because it reveals the elements in the learning process, orders them in a logical sequence, and helps explain the interrrelationships among them. As a consequence, they proposed that Bloom's taxonomy be used in curriculum planning because it is designed to give precise direction to the learning process and is expressed in terms of expected student behavior at each level of the accounting program. The taxonomy consists of six major levels of learning, namely: 1. Knowledge, 2. Comprehension, 3 Application, 4. Analysis, 5. Synthesis, and 6. Evaluation. Knowledge refers to the ability of the student to remember and recall information. For example, what is an asset. Comprehension is the ability of the student to understand the relations between facts or concepts. As an example, the student may be asked to identify current asset items by looking at a group of assets. Application refers to the ability of the student to use information and procedures that are comprehended. Here, a student may be asked to classify asset accounts correctly. Analysis refers to the ability of the student to break down an idea into its parts. For example, a student may be asked to classify accounts by identifying asset, liability, and owner's equity. Synthesis refers to the ability of a student to rearrange parts to form a new whole. For example, a student is synthesizing when he can arrange raw data into proper accounting form in oder to reach logical conclusions. Bloom's system of

classification would provide students with the higher order evaluative skills needed for their long-range careers as well as with the ability to manage new knowledge on a self-study basis (Bentz, 1975). The taxonomy can provide professors with a means of establishing educational objectives in terms of expected student outcome behavior within each course. Using the taxonomy as a guide Bentz (1975) produced the following curriculum structure, which is based on different levels of accounting courses.

LEVELS OF OBJECTIVES IN ACCOUNTING COURSES

Level Objectives	Primary Objectives	Secondary Objectives	Tertiary Objectives
Introductory	Knowledge Comprehension	Application	Analysis Synthesis Evaluation
Intermediate	Application Analysis	Comprehension Synthesis	Knowledge Evlauation
Advanced	Synthesis	Analysis	Knowledge Comprehension Application

Source: The Accounting Review, April, 1975, pp. 370-379.

2. Theories of Teaching

Theories of teaching, often referred to as theories of instruction, deal with the ways in which a person influences an organism to learn (Gage,1972, p. 56). They can be viewed as being any assistance that teachers give to students to facilitate learning. Teaching is the process of making and implementing decisions before, during, and after instruction, to increase the probability of student learning (Hunter, 1979, p. 67). In this context, theories of teaching are concerned with the more practical problems of guiding students' learning activities regardless of the nature of the learning process. Theories of teaching are concerned with how and what one wishes to teach can best be learned, with improving rather than describing learning (Bruner, 1966). This is not to suggest, however, that teachers need a profound understanding of the learning process or a systematic comprehensive theory of learning, but that teachers could benefit from some of the principles and assumptions on which they might base their practice. Typically, theories of teaching merely provide support to the processes of learning. Thus, ways can and should be found to allow research to enrich and complement teaching in accounting.

Theories of teaching can stimulate and give direction to research and instructional behavior; stimulate and direct general curriculum improvement; and define and relate relevant knowledge (Hosford, 1973, pp. 73-82). Many of the influences, however, have implications for learning, but have not been adequate for the development of theories of teaching. The primary reason for this inadequacy is due to the fact that teaching, like learning, is a complex process.

Gaff (1975) asserted that:

> Teaching is a complex set of attitudes, knowledge, skills, motivations, and values. The improvement of instruction and learning requires an awareness of the complex relationship among faculty, students, and institutions. Practically, this means that there is no single method of effective teaching or learning; simplistic solutions or proposals advanced as panaceas with a doctrinaire approach should be avoided. In recognizing the complexity of the teaching-learning process, proponents of instructional improvement also recognize the great diversity among students. Their various learning styles are based on differences in ability, interest, educational background, future aspirations, and personality orientations, and these different learning styles call for different kinds of learning experiences (p. 93).

Consequently, because of the complexity of teaching and learning and because of individual differences in learning, a number of instructional methods have been developed and tested through scientific studies and research to facilitate both student learning and teaching . A theory of instruction takes into account the nature of knowledge, the nature of the knower, and the knowledge-getting process (Bruner, 1965, pp. 40-41).

According to Bruner, a theory of instruction must be concerned with both learning and development and must be congruent with those theories of learning and development to which it subscribes. He maintains that a theory of instruction should specify the experience which most effectively implants in the individual a predisposition toward learning; it must specify the ways in which a body of knowledge should be structured so that it can be most readily grasped by the learner; it should specify the most effective sequences in which to present the

materials to be learned; and it should specify the nature and pacing of rewards and punishment in the process of teaching and learning. Here, the central task of the instructor is to direct the learning and thinking of each student along lines that are consistent and compatible with the motivational profile they bring to class. Yet our success in accomplishing the purpose of organized education depends primarily upon the learning that takes place in the classroom under the direction of the teacher. In addition Gagne specifies eight component functions of the instructional situation, representing the ways in which the learner's environment acts on him, that must be managed by the teacher: (1) presenting the stimulus, (2) directing attention and other learner activities, (3) providing a model for terminal performance, (4) furnishing external prompts, (5) guiding the direction of thinking, (6) inducing transfer of knowledge, (7) assessing learning attainments, (8) providing feedback.

These eight functions, then, represent the way in which the learner's environment acts on him. These are the external conditions of learning that, when combined with certain prerequisite capabilities within the learner, bring about the desired change in his performance. Obviously, there are many ways to establish these conditions in the learning environment, and many combinations of objects, devices, and verbal communications may be employed in doing so. Probably the most important consideration for the design of the learning environment, however, is not that several alternative ways of accomplishing the same function are usually available. Rather, the important point is that, for a given function, certain means of interacting with the learner are quite

ineffective. Accordingly, the characteristics of various media of instruction in performing these functions need to be considered carefully in making a choice (Gagne, 1965, pp. 268-271).

Dick (1978) stated that there is no single approach for designing instruction. There are, however, a number of models that can be used by accounting educators in their approaches to teaching, and all of them share most of the same basic components. An example of some of the models available can be seen in a book entitled Models of Teaching, written by Joyce and Weil (1980). A learning system design process is a set of procedures for systematically applying learning principles to instruction.

V. Teacher Presentations

Some of the problems in higher education, however, can be directly tied to the instructional methods used by teachers. There are many methods of teaching, and many teachers use a variety of instructional methods to improve their teaching and increase the probability of student learning. Moreover, since teaching is a cycle that is repeated with groups of students, accounting educators should strive to improve their teaching and facilitate student learning as they repeat the teaching cycle. Some of the more popular methods of instruction used by teachers include the lecture, group discussion, role-playing/games, case studies, demonstrations, individual tutorials, and instructional packages such as Computer Assisted Instruction (CAI), and Personalized System of Instruction (PSI). The majority of the traditional accounting courses, however, are taught by a combination of the demonstration, lecture, and discussion methods.

A. The Lecture

The lecture has typically been the dominant teaching method used in accounting classes since institutions of higher education first emerged. Today, the lecture continues to be the most commonly used method of teaching in colleges and universities (McKeachie, 1978). It can accomplish many positive instructional purposes. It can be used by the lecturer to inspire an audience with his own enthusiasm, relate his field of study to human purposes, and relate theory and research to practical problems (Gagne and Briggs, 1974). Yet, it has been severely criticized. Lectures have not always proven themselves to be an effective means of teaching because they do not produce consistent changes in student performance (Johnston, 1975).

There are, however, major reasons why the lecture has survived over the years. It is inexpensive, requires little preparation, takes less student time to cover the same material than discussion, and can be current in content and easily adjusted to meet changes in subject matter or audience (Kozma, Belle, and William, 1978). There are also several disadvantages to using the lecture as a primary teaching method. It is a one-way source of communication, it limits a student's interaction with the teacher, and it restricts retention.

When compared to other teaching methods, the lecture has not proved itself to be as effective. For example, in an experimental study conducted by Bailes (1979, pp. 147-154) which was designed to test the relative effects of two teaching methodologies on learning effectiveness and student attitudes in an introductory managerial accounting course, Bailes found that students in the PSI teaching method classes scored

significantly higher on the final examination than students in the conventional lecture teaching method classes. This finding is consistent with findings reported in other academic disciplines.

B. The Discussion

The discussion method is the chief alternative to the lecture. It enables the teacher to find out how much the student has learned by asking questions and allowing the student to respond. Berlyne (1960) found that asking the student questions, rather than presenting statements of fact, improved learning and increased interest in learning about the topic. If a student misunderstands and needs clarification, requires an illustration of a point, or would like one position compared with another, all he/she need do is ask. Thus, the student becomes actively involved in learning and seeking out information and opinions (Kozma, Belle, and Williams, 1978, p. 234). The questions assume that the knowledge required has been attained, and are designed instead to search out the nearest and the remotest implications of what has been learned. From this knowledge, the instructor can judge what explanation and review are necessary. The purpose of the discussion is to encourage student exploration of new ideas, of analogies, of similarities and differences among various branches of knowledge (Gagne, 1970, p. 3). Gagne maintains that the technique of conducting a successful discussion is a subtle art of the teacher, and it is not possible at the present time to specify in detail how it can best be done. He maintains, however, that discussion questions should not be designed to elicit facts or information, but rather to generate hypotheses by the students.

C. The Demonstration

A demonstration is a visual explanation in which sight, rather than hearing, is the major means of communicating important facts, ideas, or processes. Often the demonstrator makes use of photographs, drawings, films, displays, or guided motion. He shows how certain things are done. Sometimes, too, he clarifies a generalization by showing how a general principle operates in a particular situation. The demonstration can be used to show exact knowledge and show how new assignments are to be completed (Musseman, 1966, pp. 23-27).

Many demonstrations are conducted through skillful use of the chalkboard. When the demonstrator uses the chalkboard, two kinds of evaluation should follow demonstrations: First, the instructor will want to know what students have learned, and second, he will want to check the success of using the demonstration method. Therefore, discussions or written tests that follow demonstrations, immediately or at a later meeting, will help teachers discover what their students learned from those demonstrations. If they missed important points, accounting educators can repeat them, although some teachers may decide that another and better demonstration is needed, or perhaps a different method of explaining the material is necessary. When using the demonstration method the instructor should:

1. Prepare, in advance, by analyzing everything that is to be done.
2. Be ready to begin without delay. Have all tools, materials, and supplies in readiness on desk or table.
3. Have the class gather around so that the students can clearly see everything that takes place, or use an overhead projector, slides, etc.

4. Prepare the students by explaining, in advance, what is going to happen, calling attention to key points to be noted.

5. Be sure that the demonstration is paced so that student feedback is gained before moving to the next step. Provide an opportunity for questions.

6. Explain each step after its completion.

7. Conclude with a final summary; then immediately open the whole demonstration for questions to clear up any confusion and to evaluate.

8. If at all possible, let each student operate the demonstration himself.

The following questions may also be helpful in self-evaluation:

1. Was the demonstration adequately and skillfully prepared? Were demonstrable skills or ideas selected? Were the desired behavioral outcomes clear?

2. Was the step-by-step plan followed?

3. Were appropriate additional materials--chalkboard, felt board, pictures, charts, diagrams, models, overhead transparencies, or slides utilized?

4. Was the demonstration itself correct?

5. Was the explanation simple enough so that most of the students understood it easily?

6. Was checking performed to see that all students were concentrating on the demonstration?

7. Could every person see and hear? If a skill was demonstrated for imitation, was it presented from the physical point of view of the learner?

8. Were students helped to do their own generalizing?

9. Was enough time taken to demonstrate the key points?

10. Were the key points reviewed and summarized?

11. Did students participate by asking thoughtful questions at the appropriate time?

12. Did the evaluation of student learning indicate that the demonstration achieved its purpose (Dale, 1969, p.119)?

D. Personalized System of Instruction

The Personalized System of Instruction (PSI), often referred to as individualized instruction, was introduced by Keller in 1968. Since 1968, PSI has been reviewed by many researchers, teachers, students, and administrators. PSI allows the student to move through material at his own pace, but with accountability at every step. It focuses the emphasis of the instructional process on each individual student-his skills, abilities, interests, learning styles, motivation, goals, rate of learning, self-discipline, problem-solving ability, degree of retention, participation, strengths, weakness, and prognosis for moving ahead in various curriculum areas and projects. The teacher becomes a consultant, professional diagnostician, and prescriber of learning resources and activities, as well as an evaluator of procedures and total learning packages (called contracts) for each student. The process places responsibility for learning on the student and makes better use of his individual interests, goals, and strengths (Dunn and Dunn,1972, pp.1-60). PSI has been compared with other methods and has demonstrated its effectiveness. It has made contributions to the needed

changes in business education, and in particular, accounting education (Staples,1973). In addition, PSI has consistently proven its effectiveness over traditional educational approaches (Kulik and Jaksa, 1977, pp. 12-19).

In a study conducted by Born and Herbert (1974, pp. 6-11) using Keller's individualized self-paced instruction procedure with students in a psychology course, it was found that individualized self-paced instruction procedures were an effective method of instruction.

Kulik, Kulik, and Smith (1976) evaluated 39 studies comparing PSI and lecture-prepared students, using final examination scores as the dependent variable. They found that in 38 of these 39 studies final examination performance was better for the PSI groups. In another study conducted by Brown (1976), comparing the traditional approach and an individual instruction approach in elementary accounting courses taught at community colleges, it was found that neither approach was superior in terms of student achievement. Speer (1972, pp. 58-60) compared students taught by the conventional lecture method to those taught by the individualized instruction method and found no significant difference between the two groups.

What modifications need be made in the accounting course to take advantage of PSI is not now known.

E. Computer-Assisted Instruction

Computer-assisted instruction (CAI) refers to instruction wherein the computer provides interaction to students in order to help them learn subject matter more efficiently. On the whole, CAI can be applied to any subject and to any student. It can accomplish many positive tasks, and

should be used as an aid to the student while the teacher supervises, but still teaches. In addition, CAI can individualize instruction in a way never before done and can prove valuable data about how students learn. As a consequence, CAI can make contributions both to a theory of teaching and to curriculum development. It has the potential not only to adapt to learners' learning strategies or styles but also to help students learn about their learning strategies so they become more efficient learners (McKeachie, 1974). Moreover, it is an invaluable aid in preparing students for the real world and also in teaching them the basics of accounting (Thompson,1974, p. 23). Therefore, accounting instructors should integrate the computer into various courses in the students' field of concentration so they can acquire a thorough knowledge of how the computer can be used in their areas of concentration (Cerullo, 1972, pp. 67-68).

The advantage of CAI is that lessons repeat themselves until the student masters the material. The disadvantage of CAI is organizing the lesson so that students' replies must be well thought out. Research indicates that there is no significant difference in achievement between students taught accounting by the traditional methods and students taught with computer-assisted instruction (Baxter, 1974).

However, in a study conducted by Saul (1974), which was designed to determine the effectiveness of computer-augmented instruction when compared to conventional instruction on achievement and attrition of 833 students in beginning accounting classes, no difference was found in attrition based on material used for instruction, nor were conventional methods of instruction proven to be superior to the computer-augmented

method. Computer-assisted instruction is generally considered to be effective if it (1) directly improves learning outcomes, (2) creates the potential for improving effectiveness by reducing the amount of personal time that would otherwise be required for delivering a given activity (so that more instruction can be provided for a different objective), and (3) reduces the costs of a set of instructional transactions without impairing effectiveness (Pogrow, 1983, pp. 98-135).

F. Role Playing

Role playing is another teaching method that can be used to facilitate student learning. It provides a type of experience that enables students to explore human relations problems, including feelings, attitudes, values, and problem-solving strategies. It also enables students to demonstrate their reaction or perception to situations and persons without the necessity of utilizing cognitive skills. Role-playing can therefore be effective with a variety of learning problems. Such dramatizations may serve some of the following purposes in our teaching:

-Develop a situation for analysis.

-Present alternative courses of action.

-Prepare for meeting future situations.

-Develop understanding of points of view of others through participation and involvement.

-Facilitate and guide emotional expression.

-Increase spontaneity and encourage creative interaction.

McKeachie (1965, p. 81) suggests that role playing be used to

1. Give students practice in using what they have learned.
2. Illustrate principles from the course content.
3. Develop insights into human relations problems.
4. Maintain or arouse interest.
5. Provide a channel in which feelings of make-believe can be express- ed (McKeachie, 1965).

Weil and Joyce (1978, pp. 25-108) suggested four types of social problems that might be explored through role playing:

1. Interpersonal conflicts. Role playing can "reveal conflicts between people so that students can discover techniques for overcoming them."

2. Intergroup relations. Role playing may be used "to uncover stereotypes and prejudices or to encourage acceptance of the deviant."

3. Individual dilemmas. Role playing can help students deal with dilemmas when they are "caught between two contrasting values or between their own interests and interests of others."

4. Historical or contemporary problems. "These include critical situations, past or present, in which policy makers, judges, political leaders, or statesmen had to confront a problem or person and make a decision" (Weil and Joyce, 1978, pp. 25-108). Role playing also aids students in gaining insight into behavior. One of its greatest advantages is that it makes possible experimentation with different behaviors (Luke, 1972).

Furthermore, it introduces the student to contingencies in a work setting not directly related to performing the accounting task itself.

Other advantages include the avoidance of requiring expensive production or supportive hardware, and the distinct advantage of personalizing emotions because of the active involvement of the players (Kozma, Belle, and Williams, 1978, pp. 249-250). These authors feel that the chief disadvantage is rooted in the artificiality of the situation. In this regard, they reported on research findings by Yinon, Sholam, and Lew (1974) who found that students facing a real- life problem tended to choose a lower-risk alternative more often than students role-playing the same decision. Whether the student identifies with a role or not, the techniques force him to feel or "think" the part of the person he is playing. Except in cases where he may block out what is really happening, the student will increase his ability to understand the reasons for what people say and why they behave as they do. Consequently, for the above reasons, role playing is appropriate for courses which stress the personal development of students (Kozma, Belle, and Williams, 1978).

G. Case Studies

Case studies can be used by individuals or small groups to develop critical thinking skills and gain new perceptions of concepts and issues. Cases can be used to encourage students to think more clearly about management and develop problem solving skills. While the case method typically involves a series of cases, in some methods courses the cases are not well chosen to represent properly sequenced levels of difficulty (McKeachie, 1978). Instead, the case method of instruction should be designed to encourage students to think and develop a systematic method of problem solving.

Burns (1968) surveyed 19 university accounting courses at the graduate and undergraduate levels and found the case study method was used to supplement problem solving and the traditional methods of accounting presentation.

H. Instructional Media

The use of visual instructional media can do much to extend the range and effectiveness of the accounting teacher. If properly used, these media should become an integral part of a planned teaching-learning system in which the teacher continues to play a leading role. Curl (1972, p. 181) asserted that the two principal uses for such media are: (1) as a supplement to the instructor's lecture (audiovisual aids); and (2) as a direct replacement for the classroom-lecturer situation (self-instructional media).

In such a system, varied materials will actually complement the teacher's work. Visual presentations are particularly helpful in developing in students a facility with procedural techniques. In this context audiovisual materials can do these things:

1. Promote a mood of mutual understanding and sympathy in our classrooms.

2. Bring about significant changes in student behavior.

3. Show the relationship of subject matter to the needs and interests of pupils, with a consequent heightening of motivation for learning.

4. Bring freshness and variety to the learning experience.

5. Make learning meaningful by use of subject matter which allows for imaginative involvement and active participation or the

"I was there" feeling that results in increased learning.

6. Provide needed feedback that will help the pupil to discover how well he has learned.

7. Furnish the rich experiences from which meaningful concepts will be developed.

8. Widen the range of students' experiences in a process that will foster nonverbal learning and the making of accurate generalizations.

9. Assure the order and clarity of thought that the student will need if he is to form conceptual structures and establish meaningful systems of ideas.

Since accounting courses at most universities are considered difficult by most business students, and success depends upon the student's willingness to put forth effort (Bottin, 1977, pp. 479-484), visual aids can complement a teacher's effort. Furthermore, an understanding of theory and principles is developed by using a system of procedural techniques for developing, presenting, and explaining financial data and their relationships, in an accounting entity. In order to help the student attain an understanding of accounting theory, it is necessary in the instructional process to develop models--e.g., the journal, the worksheet, the income statement-- which are essential in explaining the variables in the specific problem being studied.

The teaching of accounting procedures is time-consuming and does not lend itself well to verbal explanation. The visualization of this phase of instruction can serve two useful purposes: (1) more realistic models of procedural techniques (compared to chalkboard illustrations)

and (2) a saving of time required to present this necessary information (McCormick, 1966, pp. 7-8).

There are many different audio-visual media systems incorporating various methods of presentation, each having two or more informational content; this includes audio-visual materials such as motion picture films, overhead transparencies, slides, film strips, audio and video tapes, and phonograph records. However, common nonprojected media have been in use for many years in most classrooms. The chalkboard, one of the oldest educational adjuncts, will continue to be a major classroom presentational aid. In Gregory's (1966) study of the methods and techniques used in the teaching of accounting, the chalkboard was reported to be the visual aid used most frequently. It was used by 42 (91.3 percent) of the 56 respondents. Yet, it is believed that the overhead projector, when used with transparencies or acetate, can perform the same functions more efficiently (McCormick, 1966).

The advantages of the overhead projector over the chalkboard in teaching accounting are as follows:

1. The teacher faces the class at all times.

2. Prepared accounting statements are professionally done and bring accounting concepts to the students as neat, orderly pieces of work.

3. Individual portions of accounting statements can be blocked out while the presentation builds to the complemented project.

4. The acetate roll can be used effectively to teach the various elements of accounting. It is always available for the teacher and produces writing superior to that on the chalkboard.

5. The acetate roll produces black on white, rather than the traditional white on black presented by the chalkboard. Colors may be used directly on the various statements (Lerner, 1967, pp. 21-22).

6. The overhead projector permits coverage of more material in a class period.

7. The projector permits neater, more accurate illustrations of accounting techniques.

8. Illustrations by the projector are easier for students to see.

9. Projector usage maintains better student interest.

10. Use of an overhead projector provides a basis for more penetrating discussion of underlying concepts through the use of prepared illustrations of problem material (McCormick, 1966, pp. 7-8).

Conclusion

If accounting educators believe that one goal of teaching is to enhance learning, then the improvement of teaching is most apt to occur when connections can be made between teaching and learning. For this purpose, it is important for accounting educators to know how teachers help produce learning, and this knowledge requires measures of both teaching and learning. As a result, evaluating the quality of the curriculum and improving teaching depends on knowing what students have learned.

Consequently, if accounting teachers are to facilitate learning in students, they must learn to apply both theories of learning and teaching in their approaches to teaching in appropriate learning situations. To do this, accounting educators should take a major part in research related to teaching and learning since change in practice reflects the strength of

the curriculum which depends upon their ability and willingness to modify existing teaching procedures.

Moreover, since accounting is a profession that calls for immediate application of skills, students should be taught a common body of knowledge that is current with the rapidly changing economic environment. Such knowledge is essential if students are to be adequately prepared to enter the accounting profession. To provide students with the rapidly changing body of knowledge, accounting educators must constantly update their subject matter and competency, and keep their curriculum current with the latest pronouncements and teaching methods. To do this, accounting faculty and administrators should focus their attention and efforts toward translating general research findings into educational practice.

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